

IN THE
United States Circuit Court of Appeals
For the Ninth Circuit

BUTTE & SUPERIOR MINING COMPANY,
Appellant,

vs.

MINERALS SEPARATION, LTD., et al.,
Appellees.

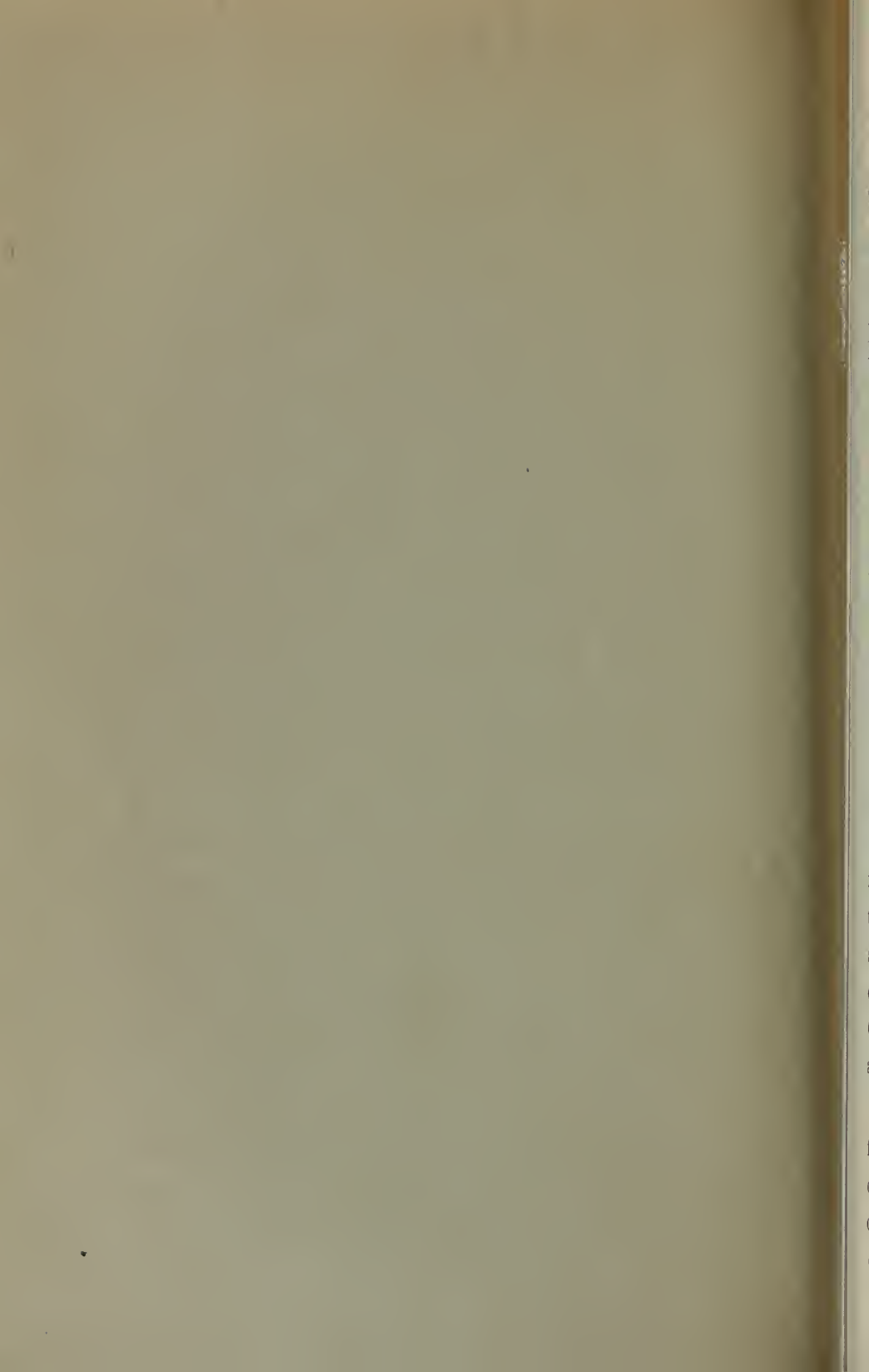
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ORAL ARGUMENTS FOR APPELLEES.

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MAR 14 1918
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Argument of Henry D. Williams, Esq.

If your Honors please, the text of the arguments we make in behalf of the appellees will be the decision of the Supreme Court rendered December 11, 1916, in the suit of *Minerals Separation v. Hyde*. I shall briefly endeavor to show what interpretation the Supreme Court placed upon the patent in suit in the light of actual disclosures of the prior art.

The invention in suit was the pioneer process of air-froth ^{flotation} ~~float~~. The Supreme Court has so said clearly and distinctly. The parts of the decision that have been called to your Honors' attention are not the parts that describe the invention and its relation to the prior art;

just one part of that decision has been called to your attention—that the patentees took the last step, that converted experiment into solution, failure into success.

In the history of patent litigation, many inventors have created new arts, as these inventors did, by turning failure into success, by turning experiment into solution, by taking the step, the last step, the right step, the step in the right direction, the step that produced the invention. A typical example of that is in the telephone cases, where Bell tightened a screw and changed a machine that could not convey speech into a machine that could. Just tightening a screw and thereby creating a new art. This invention has created a new art.

The process can be considered to some extent in the mechanism of its working, the manner in which it does the work. We start with an ore pulp, a mass of finely ground ore diffused in water, a muddy liquor. The ore consists of particles of worthless dirt or rock or gangue, and of valuable particles of metalliferous mineral. They have been separated by grinding, and they are diffused through this ore pulp which is kept in motion so that they will not settle. Air is introduced into this mass of ore pulp, and it is broken up into air cells or submerged air bubbles. These bubbles course through the liquid, pick out and select the valuable mineral particles and reject the gangue particles, and firmly attach to themselves the mineral particles and carry them up through the pulp and form upon the surface of the pulp a floating froth layer loaded

with metalliferous mineral. That is the essence of the operation of the process.

Why does it thus operate? With ore, water and air and such agitation as would bring the submerged air bubbles into contact with the solid particles, the air bubbles would very firmly attach to themselves the mineral particles and would reject the gangue particles and would float the mineral particles upward. But in rising through the liquid the bubbles would come together and would coalesce into larger bubbles, and when they reached the surface they would burst and explode and no froth would be formed, and no concentration of ores would be effected.

But the process in suit includes not only ore and water and air but a modifying agent, and this modifying agent in the process here in suit is oil; not every oil, because many oils are useless for this purpose; but an oil which, with the ore used, will so modify the air bubbles, and make and maintain the integrity of the little bubbles, that in fact the bubbles do not come together and they do not coalesce, but they repel each other, and as they course through the liquid they pick out and firmly attach to themselves the mineral particles and reject the gangue particles and buoy up the mineral particles and as soon as they are given an opportunity to do so they rise up through the pulp and emerge from the liquid as air bubbles having thin films holding the mineral particles, and they accumulate upon the surface into a floating froth layer which carries the mineral. This froth layer may be several

inches in thickness. We show it in this record seven inches thick. I have seen it three feet thick.

The bubbles in it are so persistent and so firmly grip the mineral particles that they may be separated from the water on which they float without dropping the mineral particles; usually by simply overflowing a dam.

The issue of infringement depends upon whether or not the appellant has carried on this process and obtained this result. Appellant admits that it did so up to January 7, 1917, in the treatment of upwards of a million and a half tons of ore. That was some two or three weeks after the decision of the Supreme Court; some intermediate experimenting was necessary.

The question is, has it continued to do so since January 7, 1917? What change has it made in its procedure which has so altered its process and the results of this process, as to change it from an infringing into a non-infringing process?

Before January 7, 1917, it used the froth-forming oil of the patent, with ore, water, air and such agitation as would develop the procedure of the patent. Since January 7, 1917, it has continued to use the same froth-forming oil, and the same procedure in every substantial respect, but has poured into the ore pulp other oils that are not, with that ore at least, mineral-froth-forming oils, and that have not prevented the carrying on of the procedure of the patent, but that have impaired it to some extent, a matter of a million dollars a year to the defendant. The froth-forming oil both before

and after January 7, 1917, was not only the same oil, but it was present both before and after as a small fraction of one per cent. of the ore.

Now, let us briefly turn to the patent for its disclosure of the invention. We find, at page 1, lines 9 to 10, a very general statement, such as patent specifications should begin with, of the general class of materials to which it may be applied:

“This invention relates to improvements in the concentration of ores, the object being to separate metalliferous matter, graphite, and the like, from gangue, by means of oils, fatty acids, or other substances which have a preferential affinity for metalliferous matter over gangue.”

Now, that statement is broad enough to cover any ore to which the invention may be found applicable. As a matter of fact, it is applicable to those ores that have a metalliferous mineral compound, such as the sulphide of zinc and the sulphide of lead, substances like metal, or it is applicable to graphite, which is a substance like metal, having metallic lustre. But the process is not applicable to the oxide ores such as the usual oxide ore of iron; it is absolutely useless for an oxide of iron, so far as we know.

It is therefore the purpose of this broad statement not to point out just where the invention is to be applied, but to include the character of substances which may possibly develop or become useful with the application of the invention to them.

Now, oils, all of them, have a preferential affinity for metalliferous mineral; that is a common character-

istic of oil. And when we say oils, we mean that quality, it is always present; but the statement here and the statement in the first group of claims 1, 2 and 3, is intended to be broader than oils, and the moment it gets to be broader than oils, then it has to add a description of the function that oils will always perform,—that attraction for metalliferous particles which will tend to coat them.

The only significance of those words in the specifications and the claims, about preferential affinity for metalliferous matter, is in so far as they tend to include substances that are not oils. Oleic acid is the oil of the example of the patent in suit. It is the acid of fats. A soft soap can be changed into oleic acid by the addition of sulphuric acid. Oleic acid can be changed into soap by the addition of alkali. Strictly it is a fatty acid, but is always called an oil, and in this patent it is included as the specific example under the general name.

Now, the patent in suit, after having said that you might use oils and oily liquids that have a preferential affinity for metalliferous matter over gangue—those two classes of materials—proceeds to tell you how to find out what are the ores and what are the oils or oily liquids that will develop the invention. And the language of the patent specification is clear and definite. On page 1, lines 61 to 69, it is said:

“The proportion of mineral which floats in the form of froth varies considerably with different ores and with different oily substances, and before utilizing the facts above mentioned in the concentration of any particular

ore a simple preliminary test is necessary to determine which oily substance yields the proportion of froth or scum desired.”

It is necessary to determine, by a simple preliminary test which oily substance will do the work.

That language of the patent was carefully considered by the Supreme Court of the United States. As a matter of convenience—I did not know what appellants were going to do—we have three copies of the original pamphlet decision of the Supreme Court which are handy for reference, and we have three copies of the opinion of the Circuit Court of Appeals in the Miami case as a separate pamphlet, and we have three copies of the opinion of Judge Bourquin in this case as a separate pamphlet, which I would like to hand the court.

In the pamphlet opinion of the Supreme Court at page 7, about the middle of the page:

“The composition of ores varies infinitely, each one presenting its special problem, and it is obviously impossible to specify in a patent the precise treatment which would be most successful and economical in each case. The process is one for dealing with a large class of substances and the range of treatment within the terms of the claims, while leaving something to the skill of persons applying the invention, is clearly sufficiently definite to guide those skilled in the art to its successful application, as the evidence abundantly shows. This satisfies the law.”

There the Supreme Court was considering the objection that the disclosures of the specification were insufficient because the specification told a man skilled in

the art to test and find out whether an oil would produce a mineral froth with the ore that he had under consideration.

Now, in this language of the Supreme Court it is said that such variation of the treatment must be within the scope of the claims. So we will turn to the claims, and first the group of claims, 1, 2 and 3. Those are the broadest claims in their inclusion of the modifying material; they are broad enough to include any oily liquid having a preferential affinity for metalliferous metal. In that respect they differ from all the other claims. They define such an oily liquid and then they say, and in this case in parenthesis, as though by way of example, "amounting to a fraction of one per cent. on the ore", and then they prescribe agitating the mixture until the oil-coated mineral matter forms into a froth, and then they prescribe separating the froth from the remainder by flotation.

This procedure and the scope of these claims includes only the use of an oily liquid having a preferential affinity for metalliferous matter, whether it be an oil or some other oily liquid, such as will upon agitation produce a froth of the oil-coated mineral matter. The formation of the froth of oil-coated mineral matter, which can be separated by flotation, is the very end and object of these claims. The use of an oily material which will not usefully form this froth of oil-coated metalliferous matter is a procedure extraneous to these claims. The use of an oily material which does not

form this froth of oil-coated mineral matter is a matter of indifference, so far as these claims are concerned. It makes no difference, so far as these claims are concerned whether such alien oily material is present or absent, so long as the oily material of the claims is present and so long as the alien oily material does not prevent the operation of the oily material of the claims in forming the froth of oil-coated mineral matter.

Judge MORROW. What is the alien oily substance? A substance that has no preferential affinity?

Mr. WILLIAMS. No. All oils have that; but a substance that will not produce a froth of oil-coated mineral matter is wholly alien to the claims. It won't do the thing which the claim says is to be done, which is the process covered by the claims. To give an example of that to your Honors, if you will turn to page 16 of our main brief, there is a column arrangement there showing the operations of the defendant since January 7th and before. The first column, January to December, 1916, that is the whole of the year 1916, shows the amount of pine oil—and pine oil is the oil of the claims—1.43 lbs. .07 per cent., a very small fraction.

That was the only oil used.

January 9-31, 1917, pine oil first, 1.51 lbs., practically the same .075 per cent.; but with this the alien oil, the useless oil, the inert oil, the oil that will not produce a froth with this ore, 11.93 lbs., making a total of 14.75 lbs., and a percentage of .738. There it was about half way between one-half of one per cent. and one per cent.

February 1 to 28th, pine oil 1.90 lbs. You see the pine oil increases very, very slightly, is still less than one-tenth of one per cent. The petroleum, the inert oil, increased in quantity, making a total now nearly one per cent.—20 lbs. would be one per cent.—19.33 lbs., a very large fraction of one per cent.—.967 per cent.

March 1 to 31, pine oil 2.82 lbs. That is the largest amount of pine oil; there it is a little more than a tenth of one per cent., .141; petroleum or inert oil or alien oil, 18.77 lbs., and now the total a little more than one per cent., 22.08 lbs., or 1.11 per cent.

As to April, the information supplied by the appellant was so insufficient that we could not find out the proportion of the pine oil to petroleum.

Judge MORROW. The total is stated.

Mr. WILLIAMS. Only the total is stated; it was just a trifle more, 23.91 lbs., and 1.19 per cent.

These were computed from the tables furnished by the appellant, and give the averages from the data of their operations during these periods.

Now, turning again to the patent, the second group of claims are claims 5, 6 and 7. Those claims are the claims limited to oleic acid; those claims are limited to the proportions of oleic acid which were found to produce the froth; and there the limitation in those specific oleic acid claims, is one-half of one per cent. as the maximum, and one-fiftieth of one per cent. as the minimum. That was the summing up of the experi-

ments made at the time of the invention, and, with oleic acid, one-half of one per cent. was the point at which the Cattermole granulation process had disappeared and the process of the patent in suit had commenced to appear. That is true of all of these claims 5, 6 and 7. They are oleic acid claims. They are thus limited, and claim 7 is limited to certain degrees of temperature, 30 to 40 degrees centigrade, 86 to 104 degrees Fahrenheit.

Now, we come to claims 9, 10 and 11, as to which there was a disclaimer, and claim 12, which was the broadest claim, that is the broadest oil claim, outside of the disclaimer.

Claim 12 differs from claims 9, 10 and 11 in two particulars, not one, as our adversaries say. One difference is that claim 12 specifies that the oil shall be a fraction of one per cent. on the ore, whereas claims 9, 10 and 11 say that the oil shall be a small quantity; that is one difference. But there is another difference.

Claim 12 says that you agitate the mixture to cause the oil-coated mineral to form a froth. Claims 9, 10 and 11 say that you agitate to form a froth. They do not say that the oil-coated mineral is in that froth. Your Honors will now see the significance of the statement by the Supreme Court that these claims 9, 10 and 11 were not limited to the results obtained by the process in suit.

Those are the two differences which the Supreme Court found between claims 9, 10 and 11, and claim

12, which is the one with which they should be compared. Then the Supreme Court said the patent must be confined to the results obtained; then we wrote a disclaimer in which we said these claims are to be confined to the results obtained by the use of oil in a fraction of one per cent. So we wrote into these claims the language of the decision of the Supreme Court, and whatever it means, they mean. But for the purposes of this case at bar, we do not care whether they cover a fraction of one per cent., one per cent. and a little more than one per cent., or whether they are limited to a fraction of one per cent.; for the purposes of the case at bar we are only concerned with an act of infringement which was the use of the oil of the patent, a froth-producing oil, in a proportion which is a very small fraction of one per cent. on the ore. That is the only question that is before this court as to infringement, the only issue involved in the case.

Judge Ross. We will suspend at this time.

(A recess was here taken until two o'clock p. m.)

AFTERNOON SESSION.

ARGUMENT OF HENRY D. WILLIAMS, ESQ. (Resumed).

Mr. WILLIAMS. In the decision of the Supreme Court we find at the conclusion a statement that the patent must be confined to the *results obtained* by the use of oil within proportions amounting to a fraction of one per cent. on the ore. We find throughout the decision

this insisted upon by repetition of references to the resulting froth concentrate as characterizing and identifying the invention. On page 5 we find the statement:

“The resulting froth concentrate so different from the product of other processes.”

On page 3 we find that the process in suit

“differs so essentially from all prior processes, in its character, in its simplicity of operation, and in the resulting concentrates”.

Again on page 5 at the beginning of the quotation of the substance of the testimony of Doctor Adolf Liebmann:

“The present invention differs essentially from all previous results.”

There is that repeated reference to the novel results that characterize the invention, and then the word “results” is written in as the identifying means of what is imposed as the confinement of the patent.

Now, the novelty, the great novelty of the invention is clearly pointed out in the Supreme Court opinion, that novelty consisting of two things: First, the use of an air-lift as contradistinguished from the oil-lift of prior attempts at metal flotation, this air-lift being effected by the buoyancy of air bubbles instead of by the buoyancy of oil. Second, the carrying of the metal particles by an air-froth as distinguished from an oil-float. And that novelty is summed up on page 5 of the Supreme Court opinion:

“It is not necessary for us to go into a detailed examination of the process in suit to distinguish it from the

processes of the patents relied on as anticipation, convinced as we are that the small amount of oil used makes it clear that the lifting force which separates the metallic particles of the pulp from the other substances of it is not to be found principally in the buoyancy of the oil used, as was the case in prior processes, but that this force is to be found, chiefly, in the buoyancy of the air bubbles introduced into the mixture by an agitation greater than and different from that which had been resorted to before, and that this advance on the prior art and the resulting froth concentrate so different from the product of other processes make of it a patentable discovery as new and original as it has proved useful and economical."

That reference to an agitation greater than and different from that which had been resorted to before is a criticism of the things that were done by the defendant in that case with prior art quantities of oil and alleged to represent prior art, all of which were done with a violence of agitation which even exceeded what was necessary in the process in suit. And the Supreme Court of the United States put its finger upon that and said that the process in suit was characterized by an agitation greater than and different from what had gone before. And that was absolutely true.

Cattermole, a metal-sinking process, had the same agitation as we have. Cattermole introduced violent agitation into the art of ore concentration. And this comparison is not with Cattermole because Cattermole is a metal-sinking process. This is a comparison with the processes wherein attempts were made to float metals and the language of the Supreme Court is clear and definite, I think, in that criticism.

Now I might refer again to that summary of Dr. Liebmann's testimony, picking out a few of the words there:

“Differs essentially from all previous results.”

Again, three lines further down:

“Produces a result never obtained before.”

Again, the next line:

“Froth of a peculiar character, consisting of air bubbles which in their covering film have the minerals imbedded.”

And about the middle of the paragraph:

“The froth is stable and utterly different from any froth known before.”

The Supreme Court of the United States described the prior art, and we will take the language of that court. On page 2 there are references to the various patents, all of them, every one of them, except one, that are in this case. There is only one publication referred to in this case that was not in the Hyde case, and my adversary has not referred to it in his argument, and it is not referred to in appellant's briefs, so I think I do not need to give it any attention. So the prior art before this court is the prior art that was before the Supreme Court. Commencing about the middle of the page, there is an excellent summary of it:

“Prior to the date of the patent in suit a number of patents had been granted in this and other countries for processes aiming to make practical use of this property of oil * * *.”

that was the preferential affinity for metalliferous particles, a common property of all oils—

“and of oil mixed with acid” * * *

acid was sometimes used and the appellant here uses acid—

“in the treatment of ores, all of which” * * *

all of this prior art—

“speaking broadly, consisted in mixing finely crushed or powdered ore with water and oil, sometimes with acid added, and then in variously treating the mass—‘the pulp’—thus formed so as to separate the oil, when it became impregnated or loaded with the metal and metal-bearing particles, from the valueless gangue.”

It was a characteristic of the prior art that the oil carried the metal particles, that it became impregnated or loaded with the metal particles in such a condition that it could be separated with those metal particles from the gangue.

Now, just by way of contrast, we will go to a description of the process of the patent here in suit. On page 3, the middle paragraph of the page, there is a rather specific description—a description of the process as described in practice:

“The process of the patent in suit, as described and practiced, consists in the use of an amount of oil which is ‘critical’ and minute as compared with the amount used in prior processes ‘amounting to a fraction of one per cent. on the ore’, and in so impregnating with the air the mass of ore and water used, by agitation—‘by beating the air into the mass’—as to cause to rise to the surface of the mass, or pulp, a froth, peculiarly coherent and persistent in character, which is composed of air bubbles with only a trace of oil in them, which carry in mechanical suspension a very high percentage of the metal and

metalliferous particles of ore which were contained in the mass of crushed ore subjected to treatment.”

Now returning to the prior art, as to its classification, the Supreme Court opinion says that the prior patents may be divided into two classes.

Judge MORROW. What page is that on?

Mr. WILLIAMS. Page 2, just after what I read before; the last paragraph of the page:

“The processes, of this general character, described in the prior patents may be roughly divided into two classes. The process in the patent of the first class is called in the record the ‘Surface Flotation Process’ and it depends for its usefulness on the oil used being sufficient to collect and hold in mechanical suspension the small particles of metal and metalliferous compounds and by its buoyancy to carry them to the surface of the mixture of ore, water and oil, thus making it possible, by methods familiar to persons skilled in the art, to float off the concentrate thus obtained into any desired receptacle.”

That is the flotation part of the prior art.

In the next paragraph we have the other class:

“The process of the other class, called in the record the ‘Metal Sinking Process’, reverses the action of the Surface Flotation Processes and is illustrated by the Cattermole United States patent No. 777,273, in which oil is used to the extent of 4% to 6% to 10% of the weight of the metalliferous mineral matter, depending on the character of the ore, for the purpose of agglomerating the oil-coated concentrate into granules heavier than water, so that they will sink to the bottom of the containing vessel, permitting the gangue to be carried away by an upward flowing stream of water.”

That is the process of the prior art which was the immediate predecessor of the process in suit, and as

the Supreme Court says on page 4 of the opinion, it was while endeavoring to improve this Metal Sinking Process that the process in suit was invented—I will start in reading, at line 4 of the second paragraph:

“They entered upon an investigation of the processes of oil concentration of ores which was continued through several years and consisted of a very extensive series of experiments in which the quantities of oil, of water and acid used and the extent and the character of the agitation of the mass under treatment resorted to, were varied to an almost unparalleled extent as to each factor and the results were carefully tabulated and interpreted. It was while pursuing a comprehensive investigation of this character, having, as the evidence shows, the special purpose in mind at the time to trace the effects on the results of the process of a reduction to the vanishing point of the quantity of oil used, that the discovery embodied in the patent in suit was made. The experimenters were working on the Cattermole ‘Metal Sinking Process’ as a basis when it was discovered that the granulation on which the process depended practically ceased when the oleic acid (oil) was reduced to about five-tenths of one per cent. ‘on the ore’. It was observed, however, that, as the amount of oleic acid was further reduced and the granulation diminished, there was an increase in the amount of ‘float froth’ which collected on the surface of the mass and that the production of this froth reached its maximum when about one-tenth of one per cent. or slightly less ‘on the ore’ of oleic acid was used.”

That is an exact description of what took place at the time of the discovery, and all that evidence is before this court. Now, the Supreme Court describes that froth and describes its novel characteristics at this point:

“This froth, on collection, was found to consist of air bubbles modified by the presence of the minute amount of oil used and holding in mechanical suspension between

70% and 80% of the total mineral content of the mass treated. It was promptly recognized by the patentees that this froth was not due to the liberation of gas in the mass treated by the action of the dilute acid used, and its formation was at once attributed in large part to the presence of the air introduced into the mixture by the agitation which had been resorted to to mix the oil with the particles of crushed ore, which air, in bubbles, attached itself to the mineral particles, slightly coated as they were with what was necessarily an infinitesimal amount of oil, and floated them to the surface."

That is a very full description of the invention. Those were the experiments that were being discussed in the Supreme Court of the United States when Mr. Justice McReynolds asked Mr. Kenyon when the invention appeared. And we find written right in the decision of the Supreme Court that it commenced to appear in that operation, with Broken Hill ore, and oleic acid—that it commenced to appear at one-half of one per cent. That was the subject of the discussion. It covered nothing more than that.

Now appellant refers strangely to the Cattermole specification for a definition of the oils of the process in suit. That seems a little remarkable. It is wholly unwarranted, because with Cattermole kerosene oil was continuously used in the laboratory, and heavy petroleum—petroleum residuum—was continuously used in the laboratory; and oleic acid came in at first by way of soap for emulsions, then they found advantages in oleic acid and threw aside these mineral oils and commenced to use oleic acid alone. If they had not done that they would never have discovered this invention, certainly, so far as we know; because at the time of

the discovery they tried kerosene and they tried residuum oil and they found they would not produce a froth with Broken Hill ore and therefore they wrote into the specifications, try an oil, if it produces the result, that is the oil we talk about. Of course the number of oils is infinite; they could not ever exhaust the question. We have not exhausted it today with the millions and millions of tons of material treated. They could only do what they did, put into the specification a direction "before you determine whether an oil is the oil of this process, try it; simply test it; if it works it is the oil of the process".

Judge MORROW. That is the critical proportion then?

Mr. WILLIAMS. You find also the critical proportion because it is in the evidence that when you are using this oil of the process straight, and if you have $1\frac{1}{2}$ pounds to the ton and you add another pound you spoil your process; if you have $1\frac{1}{2}$ pounds to the ton and you take away one pound you spoil the process. But when you get into another field, that these appellants have entered, the situation is different, because you can produce this mineral froth without oil, by what is known as soluble frothing agent, and it changes the situation altogether. You can produce this mineral froth with acetic acid, which is vinegar. You can produce it with alcohol, with whisky. These substances have no preferential affinity for metalliferous mineral. They go into solution in the water and stay there. And such a soluble frothing agent is present in pine oil. And when you have the soluble frothing agent, it is sometimes advantageous to that

process to use a little mineral oil. And it is a peculiar fact that when you are working that process, you may work with it the process of the patent in suit. And it is also a peculiar fact that you can add a good deal of mineral oil to the process employing the soluble frothing agent and not spoil it. But that mineral oil has nothing to do with the process of this patent which this court is now considering.

Argument of William Houston Kenyon, Esq.

And we have a patent for that soluble frothing agent process, which was involved in the Miami case along with the patent here in suit, and another still later patent, and was sustained as valid and infringed by a mixture like Pine oil, a similar mixture, by the District Court and the Court of Appeals.

Now, Mr. Bull started out by saying that the court here has merely to read, study and apply the Supreme Court decision to the facts of this case. We say the same thing. But I beg of you, take the statement of our position from us, not from the appellant's brief.

What is THE DUTY that the oil of this process, of this patent, of this Supreme Court decision, performs? On that question turns the whole issue here, the issue of infringement.

What is the fundamental inquiry that you are to make in the case of this process, this patent, this Supreme Court decision, in dealing with oil?

Are you to inquire whether it has a preferential affinity for the mineral over the gangue and by reason of that, when it is intermixed, adheres to the mineral particles and coats them,—and stop there—which is where our friends place their case of non-infringement—or must you go one step further and inquire, has it also A FROTH-MAKING CAPACITY? After coating the mineral particles, does it then on the cessation

of the agitation, FORM THE SO-COATED MINERAL PARTICLES INTO A FROTH?

This process requires not only the preferential affinity of the oil for the mineral particles to the end that it may coat them and not the gangue, but this process requires also and just as much, and, we submit, vastly more, the additional quality, the additional capacity, the additional power, upon agitation to form those coated mineral particles into froth.

Judge MORROW. Does the degree of agitation enter into the froth?

Mr. KENYON. It affects it somewhat. The Supreme Court found, for example, that there had not existed in the prior art an agitation sufficiently strong to achieve the end; that we introduced it. That was one of the things we introduced.

The process requires those two qualities of oil, and the second, even more than the first, for all oils have the first, and only some oils have the second.

The patent itself also requires it. Just let me read some lines that go right to the heart of this whole process and operation, page 1 of the patent, line 89:

“When agitation is stopped, a large proportion of the mineral present rises to the surface in the form of a froth or scum which has derived its power of flotation mainly from the inclusion of air-bubbles introduced into the mass by the agitation, such bubbles or air-films adhering only to the mineral particles which are coated with oleic acid” * * *

and not to the gangue. There is the vital thing, there is the soul of the operation; and if the oil will not do that, it is not the oil of this invention.

And just so with the Supreme Court decision, for in that decision it is pointed out (p. 2) that the preferential affinity of oil and the consequent coating of the mineral particles with oil, were old, citing Haynes, Everson, Kirby, and other processes of the prior art. The Supreme Court further points out that enhancing that preferential affinity by acid was old, instancing Everson; that utilizing the buoyancy of oil for lifting was old (p. 5), instancing Kirby; that utilizing the stickiness of oil—it is oil in every case that has gone to the mineral particle and coated it—utilizing the stickiness of oil was old (p. 3) in Cattermole,—the mixing of the pulp causing these sticky oil-coated mineral particles, when they hit each other, to stay together; nothing can get them apart after that, and so they build up, as a snowball builds up, into granules so large that subsequently in an up-current of water that will carry the gangue that has not been so granulated up and over a dam, they will wobble down against the current and end up at the bottom,—the Cattermole sinking process, utilizing the sticky mass of oil.

But said the Supreme Court, UTILIZING THE FROTH-FORMING CAPACITY OF OIL IS NEW WITH THESE PATENTEES, and the court tells what it means by that; namely, to form “a multitude of air cells,” (page 6, referring to this leaflet copy) which air cells attach themselves to the coated mineral particles (page 5), and float them to the surface (page 5), and there form a froth peculiarly coherent and persistent (page 3), consisting of air-bubbles, says the Supreme Court,

modified by a trace of oil in their films—modified meaning persistent—they do not burst—and carrying also in their films a large portion of the mineral (pages 3 and 4). There is the contrast with the art; there the definition of the invention. And there the Supreme Court put it all right on this FROTH-FORMING POWER AND OPERATION.

Now, the court below held on the facts, and in exact accordance with the Supreme Court decision, that the froth-forming quality was the essential and necessary thing (Vol. I, p. clxxx and clxxxi); that the preferential affinity of oil was of less importance, instancing our 1910 patent. And the court below, assuming that all of the claims were limited to the use of a fraction of one per cent. of the oil of the patent, said that that meant the use of a fraction of one per cent. IN BENEFICIAL SERVICE; in beneficial service meaning the froth-forming operation, for that is the beneficial service of the process.

Now, when is a thing in use? When it is in course of employment achieving the end in view, its then destiny; and when, considering its capabilities and the circumstances of the case, it is performing its full duty, which should be to achieve (a) its highest potentiality, or (b) at the very least, a reasonable degree of its potentiality.

That definition of a thing "in use" applies here,—namely, only an oil that is used to form this froth in the way this patent says, in the way the Supreme Court says.

And when you have once reached that conclusion, you have determined the question of infringement in this case, on any construction of the patent, broad or narrow, whether limited to a half of one per cent. of that kind of oil or any fraction of one per cent. of that kind of oil, or what not.

Because the appellant employs, in the procedure as to which alone the question of infringement arises, only a small fraction of one per cent. of an oil having that froth-making capacity—the pine oil—a little more than one-tenth of one per cent. at the most and achieves its flotation—all the flotation that it does achieve—by the use of that pine oil in that quantity.

For two years immediately preceding this infringement it used nothing but that pine oil and achieved results better by a million dollars a year, so the experts say it is, than when that pine oil is saddled with this incubus on its back. However, after the Supreme Court decision, and, as they say, frankly, to evade the patent as they understood that decision, THEY ADD TO THEIR ONE-TENTH OF ONE PER CENT. OF AN OIL THAT WILL, NINE-TENTHS OF ONE PER CENT. OF AN OIL THAT WON'T AND CAN'T; AN OIL THAT HAS NO FROTH-MAKING CAPACITY WHEN USED WITH THE ORE OF THE DEFENDANT AND UNDER THE CONDITIONS OF THAT PROCESS.

So much for the proposition of law. Now, for the facts, because they do with this 11th hour typewritten memorandum suggest that they want your Honors to reverse Judge Bourquin on the facts,—as to what this petroleum does in their process. So I will give a little attention to this matter of fact, just to point

out that the court below finds the fact proved “practically without conflict” (Vol. I, p. clxxxiv) that some oils are effective and more are ineffective “to operate the process.” Those are his words, “to operate the process.” He holds further that the larger part of the oil used, the nine-tenths, is ineffective, wasted, and injurious. I am going to read the next paragraph on the same subject (Our Supp. Br., p. 264):

“As before stated many oils are ineffective to operate the process and that is because they have not the quality that contributes to bubble-making. What this quality consists of, wherein it lies, does not appear. With these ineffective oils agitation will not produce froth and so there is no flotation of the metallic particles.”

And the man who tries to operate the process with such oil will agitate and agitate and agitate until he dies, for the claim says, “agitate until the oil-coated mineral matter forms into a froth”, and it will never form into a froth.

“One of defendant’s witnesses testifies”—says the court below—“that in the laboratory and plant of the Utah Copper Company, one thousand oils have been tried, of which but two mixtures give satisfaction. Petroleum seemed generally ineffective by the evidence of both parties, though some of defendant’s witnesses testify to sometimes successful experiments with them. Incidentally”,

adds the Judge; he faced these men and saw some of their tests and experiments—

“Incidentally, there is suspicion that with experiments as with figures can be done anything for or against, without impropriety in the operator”.

Is that finding of fact contrary to the evidence? Are you going to reverse that finding of fact?

Now the law that is laid down in this matter of reversing on questions of fact is well stated in your recent decision on the question of title to some of these very veins of the Butte & Superior Company. This was the opinion in *Butte & Superior Copper Company v. Clark-Montana Realty Company*, filed in this court, where you said (our Main Brief, p. 44):

“There are several assignments of error to the findings of fact, * * * The appellant does not assert that the findings of fact are unsupported by competent evidence, he contends that they are contrary to the weight of the evidence. The trial court made its findings upon an evidently careful and painstaking investigation of the testimony and the exhibits, and after a personal inspection of the mining properties. We have examined the record sufficiently to see that the findings are all supported by the credible testimony of reputable witnesses. Upon settled principles which this court has always recognized, findings so made upon conflicting testimony are conclusive upon this appeal.”

Now, what is the evidence. Mr. Higgins (our Main Br. p. 41), who has been happy enough to receive the encomiums of Mr. Bull as knowing probably more than anybody else in the world about these things, took these petroleums of the defendant's process, a mixture of fuel oil and kerosene, 18 pounds—nine-tenths of one per cent. on the ore—went through all the operations with ore, water, acid and this 18 pounds of petroleum, but it would not upon agitation produce a mineral-carrying froth or effect any ore separation whatsoever. That was done right in court. He was cross-examined on it. The court below saw it. It was a thing manifest to the eye. He then put in four pounds of pine oil, two-tenths of one per cent. of pine oil—

and up came a beautiful froth; the mineral froth of this invention.

Another experiment: He took two pounds of kerosene such as the defendant uses several pounds of; two pounds of kerosene—that was the proper quantity to get the best results, if that was a froth-forming oil. He agitated it under all the proper conditions of heat, etc. and nothing came up; nothing happened; no froth was formed. He put in two pounds of pine oil, and agitated it, and up came a beautiful froth.

Mr. Janney, their own witness (our Main Br. p. 42), superintendent of the Arthur plant of the Utah Copper Company, a practical man whom they put on the stand, admits knowing many oils that will not froth, and another class that will froth and make the bubbles stable. That latter class, those that will froth and will make the bubbles stable, are the oils of this patent and this process; the first class are not the oils of this patent and this process.

Professor Bancroft (Main Br. p. 42), also a witness for the appellant, put on the witness stand as a scientist, repeatedly says that kerosene is not a frothing oil and selects it as the typical non-frothing oil, and describes the appellant's mixture here in question as consisting of the non-frothing viscous oil, fuel oil—about 15 pounds of it—kerosene, which he had described as the typical non-frothing oil—four or five pounds of that—and pine oil which is a frothing oil; that is his description of the appellant's mixture.

Mr. Engelmann (our Main Br. p. 40), another practical man that appellant put on the witness stand.

from the Ray Consolidated Company, says: "We tried at different times to run on straight fuel oil, but we could never obtain metallurgical results."

Now what does Mr. Bull present against this? We had also called Mr. Greninger, Mr. Chapman, Mr. Higgins, and Mr. Wiggin, who all testified that these petroleum oils were generally non-frothing oils. You have to try and see. If they do not froth, that is the end of it.

What does Mr. Bull reply to this?

A British patent corresponding to this in suit, in which he finds the word "petrol." Well, now, I don't know exactly what this petrol is; it may be a gasoline. Appellant is not using gasoline. It is not material whether petrol or gasoline would froth under some circumstances or would not, because these oils may froth with one ore and not with another ore. What the British patent says—in the effort of the British patentees to grasp all they can—does not prove that even the petrol they were speaking of, with the ores that they had in mind, would be a frothing oil.

Mr. Bull reads from the Cattermole patent. Because our patent refers to the Cattermole patent and our invention came to us out of the blue, while we were trying to economize oil in the Cattermole process, he says any oil described in the Cattermole patent must be read into our patent. But he overlooks this interesting circumstance. The Cattermole invention proceeds by the stickiness of oil. All of these oils are sticky. If you coat a mineral particle with enough

to take advantage of that stickiness, you can use any one of them. In the Cattermole operation kerosene will operate; these fuel oils will do; you can work the Cattermole process with any of them. But with our process—no. It is only certain oils that will work our process. And the world is indebted today to the happy circumstance that our inventors were working the Cattermole process *with oleic acid*, which has, in addition to the quality of stickiness, the then unknown quality of froth-formation, that it possesses this invention today. If they had been working with kerosene and had reduced the oil to nothing they would never have obtained this froth. Mr. Higgins says so in the original document regarding the making of this discovery. So what you find in the Cattermole patent cannot help you to interpret this patent in suit. Nothing is specified in the patent in suit but oleic acid. That will do it. What you must do is, as you are told, to try each new oil and see whether it will do the thing described as the thing to be done.

Now this was Mr. Higgins' report, page 1111, Volume 3 of the record, written within a week of the making of the invention; and in the same paper that describes the making of the invention he adds this as a note,—down near the bottom of page 1111—First, at the top of page 1110 he gives the details of an experiment with paraffine, starting with one-tenth of one per cent. and testing up to a full one per cent., and off to the right he says: "Very little float."

Now at the bottom of page 1111, where he sums it up, he says:

“A diminution of the percentage of oil when that oil is either paraffine or Balkhany crude oil, does not cause a similar frothing to the oleic acid, but a diminution in the size of the granules”—still Cattermole—“and an increase in the time required for clean up of the sands.”

Mr. Bull referred to Mr. Higgins' testimony in these typewritten pages of his. I want to add another reference to it, in connection with the further examination of Mr. Higgins, Volume 8, page 4740. Our brief does not have it; questions 49 to 53.

“Q. 49. Have you ever obtained mineral froth by the use of kerosene alone?

A. No, I have not.”

That testimony was given in May, 1917, and Mr. Higgins had been present at the birth of this invention, and has been with it step by step from 1905 to 1917, and he never had been able to obtain a mineral froth by the use of kerosene alone.

“Q. 50. By what name is kerosene known in England?

A. Paraffin oil or simply paraffin.

Q. 51. You mentioned two especial instances wherein you had obtained a mineral froth with petroleum oils. What were those exceptional instances?

A. One of them was the use of the material known as petrol which is used for motor cars in England and the other was in the use of a heavy lubricating oil such as is used for valves, and known as Cosmosee l.

Q. 52. And is petrol in England the equivalent of gasoline in America?

A. Yes, it is the trade equivalent. It is rather lighter.

Q. 53. Did you examine these oils at the time that you made these experiments, for the purpose of determining the purity?

A. No, I did not.”

In these fuel oils that you find in the market there is mixed with them this soluble frothing agent constituent, some residuum from the way in which they are manufactured.

Mr. SHERIDAN. I must object to your bringing in evidence at this late date; there is nothing of that kind in the record.

Mr. KENYON. Mr. Sheridan is mistaken in interrupting me, because the record shows in dozens and dozens of instances of various oils of commerce containing a soluble frothing agent constituent. Almost every instance of use in the art of small quantities and certainly every instance of the use of large quantities of oil has included some crude oil, one of the constituents of which is this soluble frothing agent, and when any such thing as that is present, even in very minute quantity, it does froth.

Now, finally, on page 46 of their brief appellant's counsel refer to a 24-hour run at the Arthur Plant of the Utah Copper Company, where first there was a mixture of active and inactive oils, and they got a certain result; then the active oils alone and they got a certain result; then the inactive oils alone and they got a certain result. Strange to say the last result was better than the second, or inferior only to the first, and from that they conclude that fuel oils are frothing oils, and they say these determinations are NOT contradicted or QUESTIONED. But I want you to turn to the record, Volume 5, page 2621. Those conclusions were not only questioned, but on cross-examination THEY WERE DESTROYED, and that ended it. Let

me read to you on page 2621, beginning at XQ403. This is at the Arthur Plant. This (Vol. 9, p. 4994), is the sheet (Deft. Ex. 31) put in by this witness Janney. This is all that they talk about on page 46. At the top of the column from which they draw their conclusions are the figures "1.60."

"XQ. 403. So that as far as this sheet is concerned, showing what came in there, or 1.60 of oil, it is utterly useless?"

A. With 1.60 pounds of oil, yes.

XQ. 404. It is utterly useless?"

A. Yes.

XQ. 405. And it is utterly useless as to every one of the figures as to any of the quantities or amounts under 1.60."

It is some of these amounts that on page 46 of our adversary's brief are compared. What did he say?

"A. Yes, sir."

The only witness who knew anything about them, the witness who put them in, said they are useless.

"XQ. 406. Because in each instance the amount of oil you actually were operating with was entirely different from the figure appearing in the column in which the first figure is 1.60?"

A. Yes, sir.

XQ. 407. And when you made an experiment there was no way of demonstrating the verity of it unless you knew what was in the Dorr tank before you began? Isn't that correct?"

The Dorr tank was an enormous tank 44 feet across and 12 feet deep.

"A. I could not tell how much oil I was going to use until afterwards.

XQ. 408. Yes, and you could not tell about a great many other factors because of the remnants of the previous days' operations that had not been cleaned out? Isn't that true?

A. Yes."

Now, hasn't that been *questioned*?

Now appellant has added 9/10ths of one per cent. of petroleum oils, which does not affect the process in essence or kind. I leave that question of fact. Your Honors will not for one moment consider the proposition of reversing the court below in view of the testimony.

That added 9/10ths of one per cent. of petroleum oils does not affect the process in essence or in kind. It is mere addition. Whether it helps or hurts, it is mere addition. Reading from the argument of the appellant in the court below, concerning the fact that mere addition does not avoid infringement, counsel for appellant there said, "If you have the patented thing and use that and then add something to it, you do not avoid infringement, certainly not. That is absolutely elementary. If a man has invented the prime essentials of an automobile, and I come along and add a horn, I do not avoid the infringement, because I have added a horn to the automobile."

That is all this 9/10ths of one per cent. of petroleum is.

It is a mere addition, like the "acid" which enhances, says the patent in suit, the "preferential affinity" of the oil for the mineral, page 1, line 43 (it does not create that preferential affinity but it enhances it);

it is like the "heating", which, the patent says, assists the contacting of oil and mineral and the coating of mineral by oil, line 52; like the "fine grinding", which, says the patent, assists the formation of froth, line 56 (it does not cause the froth-formation but assists it); it is like the appellant's "sulphate of copper" that they must use, and in great quantities, and which, says Mr. Dosenbach, their expert (page 3345, Q138, volume 6), enhances grade and increases recovery and assists the acid in its action; (sulphate of copper does not create the froth but it enhances the result). Just so with the appellant's petroleums, if they enhance anything; just so whether they enhance anything or not; FOR THEY DO NOT CAUSE THE FLOTATION, THEY DO NOT FORM THE OIL-COATED MINERAL PARTICLES INTO THE FROTH.

The court below held on the evidence that the petroleums were responsible for the poorer results, and the witnesses produced on our part showed that those poorer results were not mere increased cost of oil; that they included lower grade of concentrate, diminished recoveries, increased losses in the tailings, increased cost of operation, diminished capacity of mill; all of those things costing the appellant company at the rate of \$1,000,000 a year.

The court below held, as a finding of fact, that the defendant uses the plaintiff's process for ore concentration by air-bubble flotation; that is to say, the same elements, the same combination, in the same way, with the same function, to the same results.

The court below held that the addition of the petroleum no more adds to, or changes, the process than

would the addition of any useless substance not a part of the process.

Now, is appellant's an oil-lift or an air-lift process? For every ton of ore that goes into the appellant's mixing vat, 214 pounds of metallic zinc are lifted to the top in the concentrate. The total amount of oil that is found in that concentrate useless and useful together, the whole thing would account for the lift, by the buoyancy of that oil, of about $\frac{2}{3}$ of one pound of zinc. Is that an oil-lift process, or an air-lift process?

Again is appellant's result the same as that of the process of our patent?

The witnesses on our side (our Main Brief p. 43) are all clear on that; they say the froth is identically the same thing. The witnesses on the other side are mostly silent on the subject, but Janney of the Utah Copper says there is no practical difference in the froth until you get up to about 100 pounds, that is 5 per cent., and then it begins to look oily.

Sadtler, for appellant (Vol. 7, p. 3785, RQ574) says, that with small or large quantities, if you have provided sufficient agitation, you get the oiled air-bubbles and the mineralized froth which is the new product in all cases. *Sadtler* imputed this agitation to *Everson*, *Froment* and *Kirby*; but the Supreme Court has held otherwise. However, there is no dispute but that appellant provides sufficient agitation.

Counsel for defendant in the court below has summed up the testimony in this matter of his own four expert

witnesses. This was in the oral argument in the court below (our Main Br. p. 10):

“Now I maintain that it has been satisfactorily proven by our witnesses, Professors Bancroft, Sadtler, Taggart and Beach, that there is no difference between the action of plus one per cent. of oil and minus one per cent. of oil in any respect that science can develop, and technically there is no difference. Our mill operations as set forth in these tabulated statements which we have introduced and in testimony of our witnesses show that there is no difference from a technical and commercial viewpoint. It is a case in which practice and theory are in absolute agreement.”

That testimony and that argument were made to serve the purpose of the contention of invalidity on new evidence, in the hope of getting the Supreme Court some day to reverse itself. But the fact on which it is based and the argument itself are utterly destructive of the argument of non-infringement made by counsel for appellant here, because it admits and asserts absolute identity of result.

Now an attempted answer to the charge of infringement here is its asserted unfairness or inequity in view of our argument before the Supreme Court. Appellant says that having saved our patent by saying that large oil quantities are not the equivalent of small, do not produce the same result, we now assert infringement by saying that large oil quantities do produce the same result as small and are the equivalent. The trouble with this attempted answer is that *there* the whole discussion was as to STRAIGHT OILS OF THE PATENT; 36 pounds of oleic acid, 72 pounds of cotton-seed oil, two pounds of which would do the work. That is not the sort of thing

we are discussing here. *Here* we are talking about a MIXTURE in which there is one-tenth of one per cent. on the ore of an oil that does the work, and 9/10ths of one per cent. of an oil that can't and won't do the work. The questions are not the same.

Appellant's statements as to our argument before the Supreme court are most unwarranted as matter of fact, but the Supreme Court wiped all that subject out, all that discussion of Dr. Byrnes' experiments, because as we argued, and as was the fact, they were not prior art; they were not the defendant's procedure; they were laboratory freaks, proving nothing; they failed in the mills; they were hares drawn across the path of the court to distract attention from the real questions. The Supreme Court went straight to the real prior art and said what it was, and to our real process and said what it was.

Another attempted answer is that their results are different. Having asserted in argument below that their results were the same, they assert here that their results are different, and I call it the "more oil and less mineral" argument. The Supreme Court has sustained your patent, they say, because the prior art froths have "more oil and less mineral"; our froth, they say, has "more oil and less mineral"; therefore our froth is a prior art froth. It looks rather convincing. Things equal to the same thing are equal to each other. But it is really childish. An elephant is heavier than your dog. My dog is heavier than your dog. Therefore my dog is an elephant.

No. The comparison must go deeper than that. The Supreme Court has drawn a line of DIFFERENCE OF KIND between the prior art froths and the appellees' froth, and the only question of infringement is on which side of that line does appellant's froth lie. Is it our froth, or is it the froth of the prior art? The appellant's brief does not contend that its froth is *the oil-float of the prior art*, as defined by the Supreme Court; nor is it bold enough to put its finger on *any particular process of the prior art* and say, *that is our process, that produces our froth*. Instead of that it talks of "prior art quantities of oil."

It is futile to talk of "prior art *quantities of oil*" apart from the character of the oil, apart from its use in the prior art process, apart from the essentials of it there, apart from its principle of action there and the results it obtained. It is futile to talk about quantity apart from those things. Of what profit or materiality is it to substitute in a frothing process a "quantity" of oil that has been found appropriate for another character of oil in a sticking process, or in an oil buoyancy process. Quantity *per se*, apart from operation or result, is nothing.

If we assume that all oils are the same and that all oil processes operate in the same way and end in the same result, then quantity and difference in quantity would be all there was to it. That was the view of this invention taken by this court and that was the view of this invention presented by this appellant in the Hyde case to the Supreme Court in urging affirmance. But that is not the real situation. That is the argument

that lies at the base of the contention that the invention and the patent are limited to a hard and fast "quantity line" regardless of ores and operations and results. But the Supreme Court has swept away that assumption. It has held that oil processes do not all operate in the same way or obtain the same result.

Another attempted answer of appellant based on alleged difference of results is this. They argue that their results are BETTER, and therefore they do not infringe; that these petroleums have some advantages, that they prevent the big particles of mineral from dropping out from the bottom of the froth, that they in some way control the froth, and they cite the use of small quantities of petroleum by our licensees to that end. But even if true that is mere addition, and does not avoid the basic invention.

Another attempted answer based on alleged difference of results is that their results are poorer. They say our results are poorer, they are \$1,000,000 a year poorer, and therefore we do not infringe. They say: "The Supreme Court gave you a patent whereby you were able to save \$1,000,000 a year. We do not save a million dollars a year, therefore we are not using your patent." This is a misconception, a ridiculous misconception, of the fact and the effect of the Supreme Court decision. That was what was argued by the appellant before that court in seeking affirmance, but the Supreme Court said, this process is not mere economy in oil, it is something else. The Supreme Court said: while you were seeking to economize oil, you found something else that you did not expect. This

was like Columbus, while he was seeking the East he came upon the West. That does not change the fact that Columbus discovered America. A new result, a new operation, both new in kind, the Supreme Court has found in this process.

Now, the court below held, as matter of law, that the law looks through the form to the substance. That cannot be error—looks to the thing that does the work—that cannot be error. If that is taken there is infringement. And the court gives an admirable and discriminating statement of what the invention is; that the AIR does the work, just as the Supreme Court said, of separating and lifting; that the air has a preferential affinity for the mineral; that the air cells capture the mineral; that air does the lifting. The court below said of this process: “It is the first of its kind.” (Vol. I, p. clxxix.) The Supreme Court has said that it struck out in a new line. Here is every element of pioneer-ship. The Circuit Court of Appeals of the Third Circuit has said the same thing, quoting the words of the Supreme Court, that this patent must be confined to the results obtained, not confined to the use of oil within a fraction of one per cent., but to the results obtained by the procedure.

Broadly construed this patent has been by the Supreme Court, as broadly as the broad results it specifies. And the Circuit Court of Appeals in the Miami case, says of that, commenting on that, that it acutely enlarges the question of infringement. Judge Bradford in the Miami case had thrown out claim 9 because it

was not limited to a fraction of one per cent. The Supreme Court threw it out because it was not limited to the results obtained when you use a fraction of one per cent., and by reason of that change from Judge Bradford's reasoning to that of the Supreme Court, the Circuit Court of Appeals of the Third Circuit said the question of infringement is acutely enlarged.

But we need no liberality of construction here. On the narrowest construction the patent is infringed; whether it is a half of one per cent.—that is a ridiculous argument, that we are limited to one-half of one per cent.—whether within any fraction of one per cent., whether it is any fraction above or below that will produce the results, the characteristic results the Supreme Court says we have been the first to attain—our patent should be construed certainly out to the full measure of the great invention,—certainly (1) to cover the use of any and every fraction of one per cent. of oil of the patent; certainly also (2) to cover every case where just that fraction of an oil of the patent is used and does the work, but is camouflaged by dummy oil not of the patent; certainly also (3) to cover the use of more than one per cent. of the oil of the patent if the excess is mere surplusage and wasted the results remaining the same, for superfluity does not vitiate; and (4) the way should be open some day, if that question of infringement should ever arise, for a court to say that the patent covers the use of more than a fraction of one per cent. of an oil of the patent even though with the particular ore in question less than that will not do the work, provided when the work is done it is done in

the same way and the result is the same; and lastly (5) it may well be, too, that claims 9, 10 and 11, as limited by disclaimer, may some day call for and require and permit a broader construction than the other claims.

But no question arises on the facts of infringement here, except the second.

We stand on our brief as to the disclaimer.

Argument of Lindley M. Garrison, Esq.

In the time that I shall devote to this case, I shall endeavor, from a standpoint which I think it would be fair to term that of a lay-lawyer, to draw from the record and from such study as I have been able to give this case since my first participation in it in the Supreme Court argument in the Hyde case, the proper conclusions as to where the issues are and where the right lies, in the deciding of those issues.

So far as the appellant's case has been developed before us up to this time by Mr. Bull, and I wish I were sure that that is all of the appellant's case that is going to be developed—I am not sure; and I shall use some portion of the time that your Honors have so graciously extended to me in an endeavor to suggest what use they are going to make of the balance of their brief, for they have utilized only a portion of their brief in their opening.

But so far as Mr. Bull has opened his case, it seems to me to be confined to these points: first, that we are restricted to a fraction of a fraction. He is not satisfied with the words of the patent. He is not satisfied with the decision of the Supreme Court. He is not satisfied that we should be restricted to a fraction of one per cent. He says we are restricted to "a fraction of a fraction of one per cent.—"that fraction which is one-half of one per cent."

Now, as a background for that argument, he argued at great length that the difference between the decision

of this court and the decision of the Supreme Court, in the Hyde case, was on a question of law. If that statement of his is not true, then whatever else may be true, Mr. Bull's argument is not true, because it has no foundation to rest on.

Now, is that true? What this court said in effect was, "in our judgment, and as we view the facts, the prior art processes produced the same result as the process of the patent in suit. The only difference that we find between the prior art processes and the process of the patent in suit is that the patent in suit uses less oil to get the same result. A mere matter of degree, not patentable."

Now, can anybody believe that the Supreme Court of the United States would disagree with this court upon that proposition of law, with the books full, with the authorities clear, with the opinion of this court luminous, upon the proper legal finding on those facts? Why, of course not.

The Supreme Court never intimated any disagreement with this court upon the question of law involved, but they did radically disagree with this court on the question of fact involved. They said in effect, "we find the resulting concentrate of this process so different from the resulting concentrate of all previous processes that there was novelty of invention and patentability of discovery." So the decision of the Supreme Court did not turn upon an economy in the use of oil. The decision of the Supreme Court does not rest upon economy in the use of oil. It rests upon the discovery

of a new function of oil never theretofore appealed to in any disclosure in the prior art. There was no process of the prior art that called for the use of oil having froth capacity. These prior art processes were dealing with petroleum; they were dealing with kerosene; they were dealing with all kinds of oils, utilizing their preferential affinity for metal, which all oils possess. That is no more a definition of oil than it would be to say "mix your pulp with water, that has the quality of wetness"—a preferential affinity for metal is just as much an inherent quality of oil as wetness is an inherent quality of water.

All these prior art processes that used oil used oil that had preferential affinity.

But what was the quality in oil that resulted in a concentrate so different from the prior art processes that the Supreme Court said that it practically was the beginning of a new art? It was the quality in oil which when mixed with ore and water produces a mineral-bearing froth. And because it is very difficult in words to describe anything, to define anything, the Supreme Court has done the very useful thing of describing and defining this invention by the results that it achieves. It could not describe it by what went into the mixture. That would not define anything. You can mix oil and water and air and agitate any way you want to for any length of time, and if you have not got a frothing oil, you won't produce mineral-bearing froth. So that if all these gentlemen had done was to do what the prior art told anybody to do, if they had not pointed out that you must select an oily liquid which will upon agita-

tion produce a froth, they would not have discovered anything, and there would not have been any patent, and there would not be an issue here for decision.

So that Mr. Bull's foundation on which all of his superstructure rests, does not exist. It is a void; there is nothing there.

Now, why did Mr. Bull in arguing that the Supreme Court had restricted us to this fraction of a fraction, spend so much time in talking about what various courts have said and what various counsel have said, and what various witnesses have said, and omit to tell you what the Supreme Court had said? Mind you, what he was doing was telling us that the Supreme Court had restricted us to this fraction of a fraction; but for some reason (perhaps I am going to develop it now), he refrained from telling us what the Supreme Court said. Now, what did it say? I am reading from page 3 of the leaflet.

“The process of the patent in suit, as described and practiced, consists in the use of an amount of oil which is ‘critical’, and minute as compared with the amount used in prior processes.”

Now, here come the words I want to call to your Honors' attention—

“‘amounting to a fraction of one per cent. on the ore’”.

Now, who is the judge quoting? What is he quoting? He is quoting the patent. Claim 1 of the patent says: “amounting to a fraction of one per cent. on the ore”. Claim 2 of the patent, ditto; claim 3 of the patent, ditto; claim 4 is out. Claims 5, 6 and 7 of the

patent, not "a fraction of one per cent.", but a fraction of a fraction of one per cent., a specific fraction 0.02-0.5; claims 9, 10 and 11 are "small quantity"; claim 12, the same thing as in 1, 2 and 3 namely "amounting to a fraction of one per cent."

Now, is it conceivable, that if the Supreme Court had in mind what Mr. Bull would have you believe that it had in mind, that our patent was to be restricted to a specified fraction of one per cent. on the ore, which is that fraction, Mr. Bull says, expressed by "one-half of one per cent. on the ore", why it didn't just quote the language in those claims of the patent, 5, 6 and 7, with respect to oleic acid? There is where the patent specifies the lesser fraction. Those claims do not say a "fraction of one per cent. on the ore". Claim 5 says "adding a small proportion of oleic acid amounting to 0.02-0.5 per cent. on the ore". Claim 6 says, "adding a small proportion of oleic acid amounting to 0.02-0.5 per cent. on the ore". Claim 7 says, "adding a small proportion of oleic acid amounting to 0.02-0.5 per cent. on the ore". So if the Supreme Court were going to restrict us to anything less than any and every fraction of one per cent. of oil on the ore, they would not have selected the claims that gave us every fraction of one per cent. and overlooked the claims that gave us the limited fraction. It is inconceivable. I do not believe that Mr. Bull himself has any confidence that that will receive more than enough consideration to dismiss it.

And so he says in effect: "I must have another argument that is plausible at least, and that is that

because this patent in stating the class of things that it indicates uses the words 'preferential affinity for metalliferous matter over gangue,' and since that is a quality possessed by all oils, it will enable me to argue that any oil is the oil of this patent, and if we use a sufficient quantity and get outside thereby of whatever this court confines the patent to, we can operate the body and soul and spirit of this patent with immunity".

I commend highly, and I am not speaking sarcastically, I am speaking honestly, the honesty of our opponents in many respects in this case. In their brief, they say with entire frankness just what they are trying to do. They say in effect "a burnt child dreads the fire, and we are trying to utilize the principle which was brought into the world by your invention, without having to recognize your invention". They say that with entire frankness. They say, of course, "if we could openly operate with the amount of oil and the kind of oil which is actually specified in the patent, it would be very much better; but if there is some way we can get the advantage of that and yet apparently be outside of the scope of the patent, that is what we are searching for". How do they search for it? Why, they say "this patent says that the invention relates to improvement in the concentration of ores, the object being to separate metalliferous matter, graphite, and the like, from gangue by means of oils, fatty acids, or other substances which have a preferential affinity for metalliferous matter over gangue".

In passing let me say, any draftsman of this patent, who had used the last phrase as descriptive of oil,

would have done a ridiculous thing, because all oils have that preferential affinity. He simply was outlining a class of things from which the user of this patent was to draw, to get the benefit of the disclosures of this patent. Later in the patent he tells you to take these oily liquids, because they are all properly described as oily liquids; [oils, fatty acids or other substances having a preferential affinity], and select that one therefrom which will produce the froth; and when the draftsman came to drafting his claims, he demonstrated just what I have said.

In claims 1, 2, and 3 he is talking about an oily liquid, and there he talks about the preferential affinity for metalliferous matter. He says you must have an oily liquid that has this preferential affinity. When he comes to the oleic acid claims, he does not say anything about preferential affinity, of course, because oleic acid has it. When he comes to claims 9, 10, 11 and 12, that deal with "oil," without further qualification, he says nothing whatever about preferential affinity because all oil has it, and he knows that would not be anything that would indicate the definition of the thing at all.

So that we have in the patent itself a perfectly plain, clear guide as to what it is that is to be drawn on, how you are to draw on it, and when you come to the claims, the test of whether or not you have drawn on this class and gotten the proper material from it is whether your oil-coated mineral rises into a froth—and it would be perfectly absurd to say that anybody was operating the process of this patent

in suit unless the agitation of the mixture produced a mineral-carrying froth produced by a modifying agent. So that disposes of that feature.

Then Mr. Bull, I think at that point, thought it was necessary to fall still farther back, and in the appropriate language of the day occupy a last line of intrenchments, and that he does by saying, "Well, anyhow, our mineral oils are frothing oils". He says, "I will meet you on the facts". Well, does he? Did he point out to you any testimony which showed that during these infringing operations they were using any mineral oils, which used alone would froth? He did not. And he could not, and he cannot, because there is not one single scintilla of evidence in this case that the mineral oils that they are using will themselves carry on the process of the patent in suit; and they cannot pretend that there is such testimony, and there is no such testimony.

He finally falls back upon this, which seems to be a sort of a semi-last trench. Out of the last trench now, and back toward the resting place, and here he says, "Well, anyhow, when you have such an oil, a mineral oil, together with something which will produce froth, then you get the process of the patent in suit". Of course, that is our whole argument. In other words, when you have got the genius, the soul, the heart of this invention, when you are operating its underlying, basic, fundamental factor, it does not make any difference if you put something else in there, unless that something else has the potentiality of destroying the operation of the oil of the patent.

That was his own phrase, when you have such an oil, to wit, the mineral oil, "together with something which will produce a froth," then you are operating and getting the results of the process.

Almost his final statement was that the effect of any other construction of this patent, than that which he put upon it, would result in finding that as a result of the issuance of this patent the world could no longer go on doing what it had been in the "habit" of doing; which, of course, would be a very compelling argument that the patent could not be construed in any such fashion. In the first place, no one wants to construe it in any such fashion, and in the next place here again there is not one single foot of solid ground for him to stand on in making that assertion. The Supreme Court of the United States has directly and distinctly and often in the opinion said that the resulting concentrate of this process was entirely different from the resulting concentrate of any other process. So what does he mean when he talks about not being permitted to go on and do what they had been in the "habit" of doing, or what anybody had been in the "habit" of doing in this respect? Until this invention was given to the world no one had ever been in the "habit" of producing an air-froth. It was not known to the world. Sometimes it is difficult to determine how often you have to do a thing or how many people have to do it in order to constitute a "habit"; here we do not have anybody that did it. We were the first to do it. So how can there be any respectable, any possible argument, even, based upon

the idea that by some construction of this patent, somebody is going to be prevented from doing what he had been in the "habit" of doing in this respect?

That brings me to what I assume,—I rather hope that my assumption is incorrect—that our learned and able and astute adversary will next do. I cannot believe that Mr. Fish is going to fool around very long with these thin, inconsistent, unfounded arguments of Mr. Bull's. I think that these were red herring thrown across our path to get us chasing down the wrong road, and I am afraid we have chased a little too long on that road. Now, what do we find in their brief which Mr. Bull never adverted to and which I imagine Mr. Fish will advert to, unless Mr. Fish gets on to the fact that the answer to this is quite as conclusive as the answer to that which Mr. Bull has brought forward. It may be that he feels that there is no particular use in bringing forth two arguments, which can easily be answered, and that perhaps more can be gained by *rejuvenating* the argument that was advanced initially. But in their brief they devote a great deal of space to the demonstrations and experiments in the Hyde case, what we said about them, and what the Supreme Court held with respect to them. And from that they draw deductions, which deductions naturally are favorable to them—because they draw them. It is necessary therefore to have in mind a perfectly clear idea of what did take place in the Hyde case in this respect, and what the proper deductions to be drawn therefrom are.

We were concerned in the Hyde case with two initial questions: first, what authentically is the prior art? And second, what had we to say with respect to those things which the defendant in that case, practically the appellant here, said were prior art and which we denounced and said were not prior art?

Now, it must be remembered, always, with respect to any consideration of experiments, demonstrations, arguments or conclusions in the Hyde case, that every operation, whether it purported to be prior art or existing art or some other art, was with a single oil. And by that I mean an unmixed oil, whatever the oil was, petroleum or kerosene or fuel oil,—there was not any fuel oil in that, I believe—or cottonseed oil, or oleic acid; it was always an unmixed oil. Now, then, what did we say with respect to the prior art? We asserted in the Hyde case that no process of the prior art produced a result such as was obtained by the process in suit; and that is just what the Supreme Court has held. So that disposes of that.

We asserted with respect to the experiments said to have been conducted by their expert, Dr. Byrnes, not in our presence, and about which he testified but did not reproduce the experiments—some of those the Doctor said he had done with oleic acid and some he said he had done with cottonseed oil, and some he said he had done in percentages over one per cent., somewhere around three per cent., we will say, for the purpose of this discussion [the exact amount does not make any difference]. Now, we said with respect

to those, "we do not know what you have done in the laboratory; we have not seen it. We have heard what you said about them; we have tried these things under conditions similar to mill operations and they have failed metallurgically; they won't produce the froth of the process in suit; they won't produce the result obtained by the practice of the process in suit in mill operation." We said it then and we can say it now, if it is of any value to say it now, because there is not one scintilla of proof in this case that the oil of the patent, oleic acid, cottonseed oil or pine oil or any of the oils of the patent, if used in a greater amount than one per cent., will in the mill effectuate the process—not one single instance.

Now, how is it possible, legitimately, to claim that we are guilty of inconsistency, or that there is any limitation, or that there is any waiver, by contrasting our position here, with our position in the Hyde case? You cannot have limitation or waiver or inconsistency unless you are dealing each time with the same thing. It is absurd to say that a man or a court or anyone else is inconsistent if at the two different times that you are contrasting, he is talking about two diametrically opposed things. And that is the situation here.

In this present case, that we are arguing, every operation of this defendant is carried on with an oil of the patent plus other oils. In no operation in the Hyde case was there any mixture of oils of any kind, sort or description.

Now, I do not have to challenge my opponents with respect to that; I am not very fond of challenges.

anyhow, but they won't dare point out to me anywhere in their case anything in contradiction of that, because that is an irrefragable fact. But even if it were otherwise, what comfort can legitimately be drawn by our adversaries? That which they attempt to draw is this: they have either got to say "we are using a prior art process and getting the *same* result as the process in suit" or they have got to say "we are using a prior art process and are getting a *different* result from the result obtained by practicing the process in suit." They have got to say one or the other of those things in order to get anywhere in this argument, never mind what the facts are that they rely on with respect to the Hyde case. Let us now take up the first, namely, "that the defendant, Butte & Superior Mining Company, is using a prior art process and getting the same result as the process of the patent in suit." Well, we say to them "the Supreme Court has settled that." The Supreme Court has said that no process of the prior art produces the result of the patent in suit. So that ends that. The Supreme Court says that, and that is settled, so far as this court is concerned, whatever the Supreme Court may do if this matter is ever presented to it. So that argument must disappear.

Let us take their other argument, "that the defendant is using a prior art process and getting a different result,"—all this talk about "more oil and less recovery" and what not. But unfortunately the unanimous testimony in the case is exactly to the contrary of that. They are met by an absolutely unsur-

mountable obstacle in the facts. Their own counsel, after our witnesses, Higgins, Chapman and Greninger, and others, had gone out and looked at the operations of the mill of the defendant, and had said, "Your result is the result of the process in suit"—their own counsel said, "Our mill operations as set forth in these tabulated statements," [and these tabulated statements involve all of their mill operations] "which we have introduced, and the testimony of our witnesses shows there is no difference from a technical and commercial view point"— Well, now, if there is no difference, how on earth can the present counsel for this defendant have the face to argue that this whole case here must turn upon the fact that there is a difference. It is one of those cases, which I suppose we have all had the misfortune to be in, where one thinks of an awfully good theory but has thought of it too late. They have thought of it after the case was tried on another theory, which absolutely demolishes and destroys any possible standing ground for the theory that they would like to argue. So if they say "prior art processes, same results," we point to the Supreme Court; we say that bars your progress there because it says "that is not possible," "that is not so;" "you cannot do it;" "legally that is not possible." If they say "prior art processes and different results," here is a wall of facts that absolutely is irrefragable. So where are our learned adversaries in this matter? They are inside of a wall constructed by a grant made by the government to these inventors, construed by the authority that has the power to construe it, absolutely demon-

strating that they are within the four corners of the document.

Mr. Bull has pleasingly and charmingly wandered around, always keeping well away from the wall, so as to avoid injurious and hurtful contact, and all my learned and adroit friend, Mr. Fish, will be able to do, never mind how much he tries to persuade himself or you that he is not doing so, will be to run around in circles within the confining boundary of the terms of the patent and the language of the Supreme Court and the common-sense of the situation, and the justice of the situation. *ms.*